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ABSTRACT

Noting that a distinction can be made between the different types of problems faced by managers in today's organizations, and that managers increasingly face problems of a more complex nature, this paper suggests that an interactive management approach is best for solving complicated problems. Following an introduction that distinguishes between relatively simple problems and those that are more complex, the paper first discusses techniques for managing group processes for complex problem-solving, including the complexity of the problem, the communication among the participants in the problem-solving, and the resources available to the group. Next, the paper identifies necessary components of group facilitation for complex problem-solving, including definite control of group process; problem identification preceding generation of alternatives; and use of tested, behaviorally and technically balanced group methodologies. The paper then analyzes five variables in the interactive management process, including computer hardware, software, and peripheral equipment and a specially designed room. The paper concludes by noting that this program, built around the three components of effective problem resolution of intelligence, design, and choice, is a logical method of solving complex problems. Tables of findings are included. (DF)

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Facilitating Group Communication: The INTERACTIVE MANAGEMENT Approach

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FACILITATING GROUP COMMUNICATION: THE INTERACTIVE MANAGEMENT APPROACH

I Introduction

A crucial distinction can be made between the different types of problems faced by managers in today's organizations. One set of management problems, designated "Class I" or "Normal" problems (see Christakis and Keever, 1984), consists of those problems for which the knowledge necessary for solving them exists within a single discipline, which are characterized by a hierarchical involvement of units in an organization, which can be solved by following a proven series of steps, and which demand no need to reassess the basic variables or assumptions underlying the problem. "Class II" or "Complex" problems, on the other hand, are associated with multiple disciplines, involve different units at the same level in an organization, cannot be solved by following past methods, and demand reevaluation of the basic variables and assumptions underlying the problem. These types of problems have been defined by a number of scholars, including Argyris (1982), Cleveland (1973), Kemeny (1980), Ackoff (1979), Simon (1960), and Rittel and Webber (1974).

Table 1 illustrates a sampling of conditions that affect problem complexity. For example, the degree of value agreement in terms of problem awareness or priority given to the problem can have a significant impact on problem-solving efforts; the same is true for the amount of time available. In general, each Class II problem will be characterized by one or more of the conditions listed in the right-hand column of the table (and perhaps other similar conditions) in varying intensity.

Much of current management theory and practice is designed to deal with everyday (Class I) problems in an efficient and effective manner. These methods are predominantly content-based; that is, the primary focus is to systematically gather the disciplinary information necessary for solving the problem. The assumption is that the solution is knowledge dependent; if the appropriate information can be gained, the answer to the situation will be apparent. In many cases, the task is to discover who has the appropriate information; in other cases, the task is to conduct the appropriate research for uncovering the necessary data.

TABLE 1

A SAMPLING OF CONDITIONS AFFECTING PROBLEM COMPLEXITY

CONDITION	EASY TO DEAL WITH "CLASS - I"	DIFFICULT TO DEAL WITH "CLASS - II"
1) Number Of Disciplines Involved	Single	Multiple
2) Degree Of Value Agreement:		
Awareness Of Problem	High Awareness	Low Awareness
Priority Given To The Problem	High Priority	Low Priority
Intensity Of Concern	High Intensity	Low Intensity
3) Time Available	Ample Time	Limited Time
4) Money Available	Ample Money	Limited Money
5) Impact On Org. Structure Or Operation	No Reorganization	Significant Reorganization
6) Impact On Resource Allocation	No Change	Significant change in resource allocation pattern required
7) Environment Stability	Stable	Turbulent
8) Others		

Increasingly, however, managers find themselves facing more complex issues, and they find that these problems do not lend themselves to conventional approaches. Traditional methods are ineffective, and in many cases are counterproductive, in dealing with complex issues. No clear answer to the complex problem can be identified and in some cases one does not exist, necessitating research. Instead, there are multiple qualitative as well as quantitative factors impacting on the resolution of the situation. Most importantly, it is required in complex problem situations that a variety of individuals in various departments, agencies, and perhaps even organizations provide their views and efforts toward solving the problem.

These multiple viewpoints provide opportunity for higher quality solutions, and they often enhance organizational cooperation in the successful implementation of solutions. However, the integration of these different perspectives in group work is usually a challenge surpassing in scope even the task itself. While conventional management practices focus primarily on the content necessary for obtaining a solution, they pay little attention to the process necessary for moving a group of individuals toward an understanding of the complex problem and a consensus on a solution. The deficiencies inherent in these approaches is made apparent by the following quote from Warfield (1976):

> . . . the lack of substantive knowledge (i.e., the absence of adequate content) often is not the major impediment to solving complex problems. Rather the main impediments may be uncovered in the problem-solving context and in the processes that are used within that context.

The remainder of this paper will describe an approach to group problem-solving which is specifically designed to work with complex problems of a Class II nature and which focuses on management of the group process. The approach to be described is termed "Interactive Management," originally developed by Warfield and Christakis (see Warfield, 1983) and currently practiced by the Center for Interactive Management at George Mason University in Fairfax, Virginia. The paper will focus on the ways in which the Interactive Management approach structures the communication among the participants in productive and efficient ways. The following section outlines some of the major problems in managing group process for complex problem-solving, and the final section will describe the Interactive Management approach and how it deals with these problems.

II Problems In Managing Group Process For Complex Problem-Solving

In dealing with problems of a complex nature, there are a variety of factors that may obstruct or hinder the performance of the group. These factors include the following:

A) The Complexity Of The Problem

The scope of variables, disciplinary expertise, state-of-knowledge about the issues, and similar factors may overwhelm and "gridlock" the performance of the group of problem-solvers, independent of other factors.

B) The Communication Among The Participants In The Problem-Solving Group

Participants who attempt to work out solutions to problems in a small group setting encounter numerous difficulties in managing their communication efficiently and effectively. Especially when each of the participants possesses a high degree of content expertise, it is extremely difficult to develop an atmosphere where people listen and cooperate with one another. In addition, discussion often lacks direction, and many of the best ideas are either lost or else they never surface in the competitive and evaluative atmosphere that develops.

The ability of participants to cooperate rather than compete is necessary for making progress towards problem resolution. Certain individual behavior may prematurely stiffle creativity, generation of alternatives, availability of key information, and overall flow of information, and participants may be unaware of or insensitive to their inhibiting behavior. Flexibility, openness of thought, and suspended evaluation are critical in dealing with complexity. The following communication factors must be controlled in order to minimize distracting factors and maximize the flow of information.

a) Unfocused Discussion

The tendency of the group to shift topics or go offin tangents.

b) Interruptions

The tendency of group members to interrupt each other before ideas are fully expressed.

c) Poor Listening

The impatience displayed by groups members who are eager to contribute their own point of view rather than listen to others' views.

d) Individual Domination

The domination in the group by a few vocal or high status individuals.

e) Constraining Communication Climate

The difficulty in establishing a climate of openness where people feel free to contribute tentative or unconventional ideas.

f) Premature Evaluation

The tendency to judge ideas prematurely, before they have been sufficiently clarified.

g) Information Overload

The tendency of the group to deal with too many ideas at one time and also the natural, but limited ability of individuals to assimilate information, process items, and provide responses.

h) Inadequate Idea-Structuring

The difficulty in relating numerous diverse ideas to one another in a structured fashion.

i) Premature Solution Focus

The tendency to focus on a solution before the problem has been adequately defined.

C) The Circumstances Indirectly Affecting The Problem-Solving Effort, Such As:

a) The Organizational Culture

Certain acts, procedure, suggestions, and recommendations may or may not be receptive to members of the organization.

b) The Expected Purpose and Deliverables Of The Group Effort: Managers' Expectations

The set of expectations concerning the deliverables, the time allotted to the issue, and the resources needed may be unclear at the outset of the work.

c) Organizational Incentives and Rewards

The set of incentives and disincentives affecting individual and group performance may dramatically affect the formation and outcomes of the group. Certain organizations encourage participative problem-solving while other organizations do not even provide adequate meeting facilities.

D) The Actors Not Involved In The Problem-Solving Effort

Individuals who are not involved partially or completely in the group work may not have a full appreciation of the reasoning underpinning the identification of critical issues and the formulation of solutions. This information can get lost in the transmission of the group's results to other members of the organization with a high likelihood of distorting the information, motives, conclusions, and recommendations.

E) The Approach (Methodologies) For Addressing The Problem

The group may lack a methodology for addressing the problem or they may be using a set of methodologies which are inadequate or mismatched to the complexity of the problem. Moreover, the members of the group may be insensitive to the role that good methodologies have in productive group work.

F) The Resources Available to The Group

a) The Working Environment

The physical space for group problem solving may be inadequate in terms of size, equipment, comfort, or convenience, as well as a sufficient amount of time for effective problem-solving.

b) Time Allotted

The group may be given an unrealistic time frame for problem resolution.

c) Scope Of Inquiry and Need For Closure

The complexity of the problem may precondition the group members to ignore or re-evaluate more fundamental assumptions and values associated with the problem. Consequently, commonplace recommendations and solutions are rediscovered and repackaged.

III Necessary Components Of Group Facilitation For Complex Problem-Solving

Literature on small group interaction has presented several models to facilitate the process of group decision-making. Most of these methods are based on the steps of "reflective thinking" described by John Dewey (1910) and discussed in terms of management decision-making by H. A. Simon (1961). Simon outlined the three primary tasks of management as (a) gaining an adequate understanding of the nature of the problem (INTELLIGENCE Phase), (b) designing alternative solutions to the problem (DESIGN Phase), and (c) choosing among alternatives for the solution which best fits the situation (CHOICE Phase).

Inspired by the models of Dewey and Simon, several approaches to group problem-solving have developed over the past twenty years which attempt to manage the process of group interaction. However, not all of them are designed for dealing with complex problems, and none of them employ an adequate systems approach which incorporates all three of the necessary components of management decision-making outlined by Dewey and Simon. Synectics (Prince, 1970), for example, emphasizes the intelligence gathering stage, leaving the design and choice-making functions to the single individual who "owns" the problem. The Interaction Method (Doyle and Straus, 1976) is designed primarily for streamlining conventional meetings through improved role definition and task divisions; however, its applicability to complex problems is severely limited due to its inattention to methodologies for synthesis, for example. Quality Circles (Dewar, 1983) are designed primarily as a way for work groups to identify and solve problems related to the product or service being produced by the group, and they are rarely applied to complex problems. Consensus Mapping (Hart, Boroush, Enk, and Hornick, 1985), a relatively new technique which attempts to help groups structure ideas into organized and interrelated sets, has not demonstrated an ability to deal with large-scale problem situations of a Class II nature.

Despite the usefulness of describing the group communication problems associated with complex problem-solving, the delineation does not offer sufficient guidance in devising a schema for improving problem-solving. However, it does provide a starting point for searching for new or improved methods and systems. While it is probably not possible to devise a single approach to group problem-solving which deals completely and unequivocally with all of the factors discussed in Section II of this paper, there are some key factors which can be controlled and changed to help overcome or minimize some of the problems presented. These include:

* Clear separation of roles during the problem-solving process such as content expertise, the context of the problem-solving situation, and the processes to be used.

* Definite control of group process, maximizing the flow of communication among the participants.

* Problem identification preceding generation of alternatives, preceding selection of preferred alternatives.

* Use of tested, behavorially and technically balanced group methodologies.

* Specially designed environment, minimizing factors which distract from group work and maximizing flow of information.

Such a system of complex problem-solving has been designed, developed, and tested based on these principal ideas. This system, called Interactive Management, is described next with special attention to overcoming the group management problems discussed above.

IV The Foundations Of Interactive Management

Designed specifically around the three principal functions of management discussed above (Intelligence, Design, and Choice), Interactive Management involves a studied mix of five synergistic ingredients:

* The Participants or Group of Stakeholders,
* The IM Facilitator,
* The Computer, software, and peripheral equipment,
* The Specially-Designed "Situation Room", and
* The CONSENSUS Methodologies.

As discussed earlier, when addressing a complex problem, it has been found to be useful to make a distinction between content, problem-solving context, and problem-solving processes. (Warfield, 1984; Christakis and Keever, 1984). The participants are entirely responsible for the content or corpus of knowledge associated with the complex problem. The problem-solving context refers to the scope or bounds of the problem to be addressed which is also the responsibility of the participants. The problem-solving processes are addressed by the four remaining synergistic components mentioned above. Problem-solving

progress is denoted by moving the participants from the Intelligence phase to the Design and then to the Choice phase through a careful selection and application of the Consensus Methodologies in conjunction with the IM Facilitator, computer, and "Situation Room." See Figure 1.

Interactive Management is practiced when the five components co-exist. In more detail these components are:

An IM Facilitator to organize and conduct the group work in accordance with the principles of Interactive Management.

Participants 5 to 12 individuals who possess content expertise on the problem situation.

Consensus Methodologies that promote the qualitative optimization of the three functions of management by providing the opportunity for focused, open dialogue in structuring ideas, designing alternatives, and doing tradeoffs. Figure 1 illustrates the relationship between the Consensus Methodologies and the three principal functions of management.

Computer Equipment and Programs that are always used in conjunction with an IM Facilitator. The programs are based on sound behavorial and technical principles and are used for accomplishing:

a) the efficient derivation by participants of structural maps illustrating relationships among ideas proposed by the participants, and

b) Tradeoff analysis with both qualitative and quantitative attributes.

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* By including Design, Interactive Management is distinguished from narrower "management science" and "decision analysis" concepts which tend to deal only with final choice.

DEMOSOPHIA*

a specially designed "Situation Room" to enhance the productivity, creativity, and comfort of the participants, as well as provide:

a) an adaptability of the physical setting based on the participants' position in the IM spectrum,

b) extensive display space supporting a sense of progress and an audit trail, and

c) ample space to accommodate up to twenty-five silent observers and supporters.

Each of these five components is critical to and inseparable for the proper practice of Interactive Management. Using the Greek letter Σ (Sigma) to denote the integration of resources for problem solving, the term "Sigma Five" has been used to describe the integrative capability of the Interactive Management approach. That is, all five components listed above must be present when practicing IM.

The typical practice of Interactive Management involves close cooperation and collaboration of the client, sponsor, and IM Facilitator in the design and conduct of a series of IM sessions aimed at resolving the complex issue at hand. Because the detailed tasks of resolving the complex problems are typically unknown at the outset, the IM approach provides a flexible, yet focused approach by moving the same set of participants through the Intelligence, Design, and Choice phase. This progression is taken as an indication of progress. The rate at which the group moves through these phases is dictated by the complexity of the problem, the capabilities of the participants, and the availability of resources (usually the time commitment of the participants). Throughout the process, participants, with the help of the other four components of the IM system, are engaged in idea generation and clarification, idea structuring and comparison, and idea communication.

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* - Demosophia is a new word conflated from the Greek words "demos" (community) and "sophia" (wisdom).

Figure 1

INTERACTIVE MANAGEMENT SPECTRUM

Progress →

MANAGEMENT FUNCTIONS / CONSENSUS METHODOLOGIES	INTELLIGENCE	DESIGN	CHOICE
1) Ideawriting	●	●	
2) Nominal Group Technique	●	●	
3) Interpretive Structural Modeling	●	●	●
4) Delphi	●	●	●
5) Options Field		●	
6) Options Profile			●
7) Tradeoff Analysis			●

At various stages, selected methodologies are applied as indicated in Figure 1. The Consensus Methodologies have been carefully selected to screen out the undesirable behavior of individuals and groups identified in Section II, while encouraging and supporting idea generation, clarification, structuring, and transmission. The appendix of this paper describes in more detail the criteria used in the selection of the Consensus Methodologies.

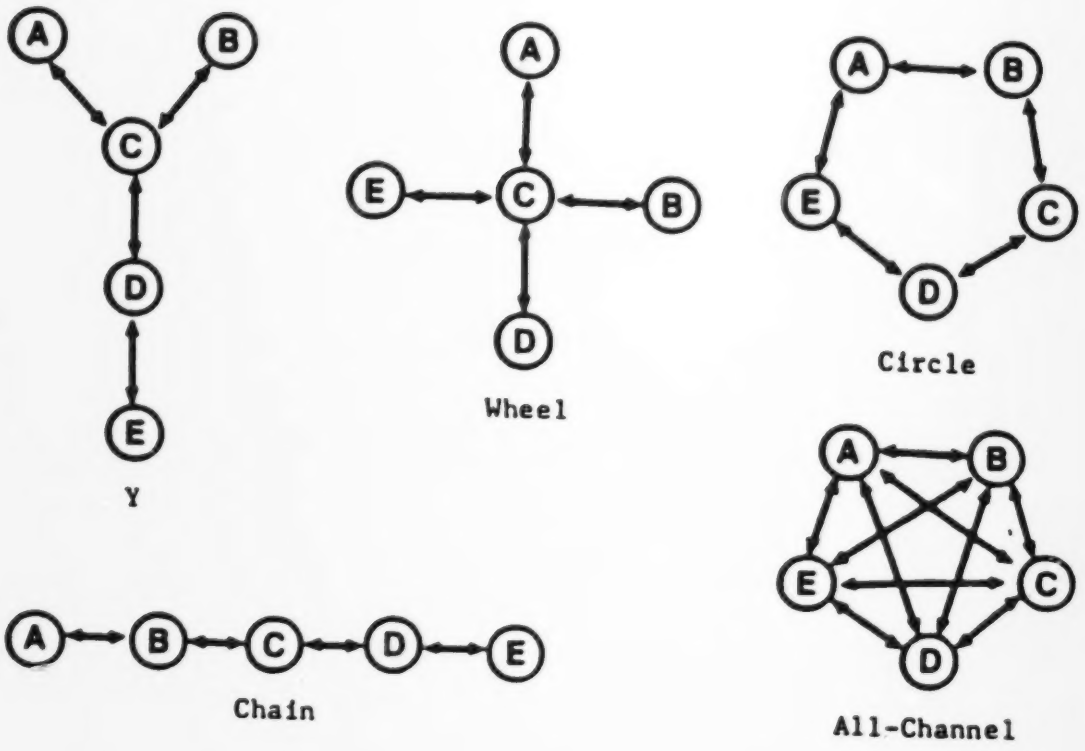
In practice, the communication patterns may be varied depending on the capabilities of the participants and their position in the IM spectrum. Figure 2 illustrates several common communication patterns and networks which exist in small group communication. For example, during the generation of ideas using the Nominal Group Technique, participants, under the guidance of the IM Facilitator, use a circular pattern. However, during the clarification portion of the NGT process, an all-channel communication patterns is used, again under the guidance of the IM Facilitator. The wheel pattern exists when the groups breakout for smaller group activity, such as Ideawriting. The chain model may occur when the participants vote on lists of ideas. The Y pattern may develop when the silent observers are consulted by an active participant for background information or opinions about an issue.

It is this integrated nature which allows IM to overcome many of the problems of complex problem-solving cited previously. In contrast, almost all meetings held in organizations can be classified as "Sigma Two", namely a chairperson (facilitator) and participants attempting to solve a management problem. A quality circle group is an example of a "Sigma Two" meeting. While "Sigma Two" meetings are usually effective for certain types of Class I problems, they are almost always ineffective and inefficient for solving Class II problems because they have failed to address the larger scope of problems discussed in Section II and the interrelationships among those problems. This is one reason why conventional approaches to solving Class II problems typically fail.

The Interactive Management system of management decision-making appears to overcome or minimize many of the problems discussed in Section II. An elaboration of the capabilities Of IM to deal with problems identified in Section II is provided in Table 2.

FIGURE 2

FIVE-COMMON COMMUNICATION PATTERNS THAT
OCCUR DURING THE PRACTICE OF INTERACTIVE MANAGEMENT



(Ref. Steiner, 1972)

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

Problem Area	Interactive Management (IM) Response
A) The Complexity Of The Problem	The IM approach uses the functions of Intelligence, Design, and Choice to map out the direction for management decision-making. Moreover, by clarifying the role of context, content, and process, participants are able to focus on the knowledge generation, structuring, and communication.
B) The Communication Among The Participants In The Problem-Solving Group	Overall, the IM Facilitator's primary function is to monitor and encourage positive group maintenance roles. Using the Consensus Methodologies and the IM Spectrum, the IM Facilitator can select the appropriate methodology that is commensurate with the group's progress. Each Consensus Methodology allows for various task roles which the participants and observers fulfill.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
B) The Communication Among The Participants In The Problem-Solving Group (Cont'd)	
a) Unfocused Discussion	The IM Facilitator focuses the group's discussion to be within the context established by the client prior to the IM Session. Many times, participants are self-enforcing of the bounds of discussion. Also, the requirements of the participants during the application of each Consensus Methodology does not overload them to the point that unfocused discussions arise.
b) Interruptions	The IM Facilitator diagnoses and enforces proper group maintenance roles.
c) Poor Listening	The Consensus Methodologies require active involvement by the participants. The methodologies require attention and listening, but the methodologies also provide for repeated exchange of information to correct for deficient or inattentive listening by one or several participants. The IM process is self-documenting and thus helps to improve on listening skills.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
B) The Communication Among The Participants In The Problem-Solving Group (Cont'd)	
d) Individual Domination	The IM Facilitator controls domination by a few vocal or high status individuals.
e) Constraining Communication Climate	The Consensus Methodologies and IM Facilitator encourage participants to be open and creative with the generation and discussion of tentative or unconventional ideas.
f) Premature Evaluation	By following the path of Intelligence, Design, and Choice, evaluation of ideas is reserved until complete clarification and understanding of simple and complex ideas is achieved.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
B) The Communication Among The Participants In The Problem-Solving Group (Cont'd)	
g) Information Overload	The IM process breaks the complexity into manageable chunks that are responsive to the information processing capabilities and rates of the participants. Through the meta-process of idea generation, structuring and communication, the cognitive overloads of individuals are minimized, but the complexity of the issue is preserved through an easily traced audit trail and the attention to subproblems and their interdependencies.
h) Inadequate Idea-Structuring	The Consensus Methodologies set contains the option of developing generic structures through the use of Interpretive Structural Modeling. This computer-assisted methodology allows for structuring a diverse set of elements using any transitive contextual relationship. The use of the computer allows the IM Facilitator and participants to focus on the questions of pairwise relationships while minimizing their need to track the overall structure, record keeping, and display needs.
i) Premature Solution Focus	The IM process enforces the proper Intelligence work prior to Design work, prior to Choice making.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
C) The Circumstances Indirectly Affecting The Problem-Solving Effort, Such As:	
a) The Organizational Culture	The IM process is usually not started with an organization that does not appreciate and understand the ramifications of participative decision-making. The sense of the organizational culture and receptivity of the client is one of the key criteria for conducting IM sessions.
b) The Expected Purpose and Deliverables Of The Group Effort: Managers' Expectations	The IM process conditions managers not to expect a "quick fix." Adequate time must be committed by participants before the IM sessions are started. If this key criterion is not met, then IM sessions are not held.
c) Organizational Incentives and Rewards	The top managers of the organization must recognize that IM is capable of dealing with complex issues which have failed to yield to conventional approaches. The progress towards solution of the complex issues must be factored into the time and efforts of the participants.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
D) The Actors Not Involved In The Problem-Solving Effort	The inclusion of silent observers into the IM process allows for improved understanding of the rationale behind the ideas generated and structured. Moreover, because the IM process is self-documenting, any point in the process can be re-examined for clarity and understanding.
E) The Approach (Methodologies) For Addressing The Problem	All of the Consensus Methodologies have been tested and applied in numerous settings. A set of criteria for selecting Consensus Methodologies is contained in the appendix. Moreover, the dedication of a physical facility (costing approximately $100,000), the training requirements of the IM Facilitator, and the separation of content, context, and process educates and reinforces to the participants the importance of good methodologies.

TABLE 2

HOW INTERACTIVE MANAGEMENT ADDRESSES

MAJOR OBSTACLES/PROBLEMS IN COMPLEX GROUP PROBLEM-SOLVING

(Cont'd)

Problem Area	Interactive Management (IM) Response
F) The Resources Available to The Group	
a) The Working Environment	DEMOSOPHIA is specially designed to support the comfort of the participant, an audit trail of ideas, adequate physical space for collective and small group problem-solving, sufficient display space, and other group maintenance role functions.
b) Time Allotted	IM sessions are never started without the full and dedicated time commitment of the sponsor and participants. A lack of commitment usually indicates a misunderstanding or unawareness of the complexity of the problem.
c) Scope Of Inquiry and Need For Closure	Since complex problems are unprogrammable, it is difficult to predict the precise outcomes of the IM sessions. The products unfold over time and lead to more detailed, integrated task force work or to researchable topics. In this sense, some closure is obtained, but the degree and expectations of closure usually do not become clear until an adequate collective understanding of the problem has been achieved.

Conclusion

This paper has described a relative new approach to problem-solving which focuses on complex problems and which is built around the three necessary components of effective problem resolution -- Intelligence, Design and Choice. Interactive Management utilizes five synergistic components to overcome many of the common communication problems of group work.

While the formal evaluation of the effectiveness of Interactive Management is only now beginning, preliminary indications from applications to client-funded complex problem-solving suggest that IM is highly effective in making major contributions to the resolution of complex problems. Table 3 illustrates some of the more recent applications of Interactive Management to various projects. The next step is to begin the more formal testing of its long-term effectiveness.

TABLE 3

RECENT APPLICATIONS OF INTERACTIVE MANAGEMENT

CLIENT	NATURE OF THE IM APPLICATION
U.S. Forest Service	Identifying and structuring of problems related to the National Forest System.
National Marine Fisheries Service/National Fisheries Institute	Public Forum for identifying roles and options for American-izing a segment of the seafood industry.
George Mason University	Anticipating the GMU Image for 1990.
Department Of Electrical Engineering	Designing a Center for EE Related Research Activities.
Agricultural Research Service	Structuring of Management Problems and Solutions for the Beltsville Area.
Task Force on Environmental Cancer and Heart and Lung Disease	Designing Action Plans for Managing Laboratory Quality Assurance.
National Marines Fisheries Service	Organizational Redesign For The 1990's.

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APPENDIX

CRITERIA TO BE MET FOR INCLUSION IN THE SET OF CONSENSUS METHODLOGIES

The Consensus Methodologies set must meet certain requirements in order to have this name. Here are requirements that are met by this set of seven methodologies.

* There must be at least one (and preferably several) methodology that permits efficient **generation of ideas** by groups (such as sets of goals, objectives, activities, programs titles, project titles, etc.).

* There must be at least one (and preferably several) methodology that allows for efficient **structuring of ideas** by individuals or groups (to produce such things as intent structures, activity sequence diagrams, priority structures, DELTA charts, etc.).

* There must be at least one (and preferably several) methodology that offers a **complete process for individuals or groups to use in designing alternatives,** and which recognizes certain **laws of design.**

* The methodologies must not **place demands** on groups that they cannot reasonably be expected to accomplish, based on their backgrounds, experience, and education.

* The **division of labor** between the people and the computer should be explicitly appropriate to assure that people do what they do best and the computer does what it does best, thereby maximizing the contribution of the group and saving their time.

* The methodologies should exhibit both a **sound behavioral design** and a **sound technical design,** both being clearly explainable, with the two components of methodological design being mutually compatible and reinforcing wherever possible.

* The methodologies should have **histories of successful application** which are available in the open literature.

* The methodologies should themselves be **described in open literature,** in which their **connection to the corpus of scientific knowledge is exhibited.**

* To be admitted to the set of consensus methodologies, it must be clear that an admitted methodology either

  (a) **is not a special case of one that is already in the set,** or

  (b) that there is some **unique benefit** by giving membership to that special case.

* Except in the case of some clear advantage, membership in a set of consensus methodologies shall favor **non-proprietary methodologies** over proprietary methodologies.

* The methodologies should be **transferable** from the source organization to the client organization with a reasonable amount of training and software modification.

* Other things being equal, methodologies that have undergone rigorous **peer review** in refereed publications are preferred to those that have not been so tested.

* The methodologies must be **participative,** that is, they must be specifically amenable to contributions from all who are involved in their use.

* The methodologies must involve specific activities that help to **assure good communication,** especially clarification of the individual component topics that are dealt with when working with an issue.

* There must be provision for **open dialog,** and for **equal decision-making powers** for all participants, in order to stimulate consensus.

* **Process roles must be clearly defined** for these methodologies. Generally speaking, participants in the processes will be distinguished from facilitators, with the latter playing only process roles and not substantive roles involving issues under discussion.

* There must be provision for **possible iteration** in the use of the consensus methodologies, to allow for the introduction of new knowledge that was not readily available at the time of use.

* There must be **provision for full documentation** of what is done, should it be required.

* The methodologies must be very **efficient in the use of the time of the participants.**

* The graphics used in the methodology shall be **translatable,** rather than intuitive. This means that the graphics must be uniquely translatable into prose. While this does not absolutely assure good communication, it does assure that the graphics do not introduce new ambiguity. Also it allows us to take advantage of the compactness of graphic expression, while retaining the explanatory power of prose expression.

* The graphics that accompany the methodologies shall, in their choice of symbols, anticipate the rapidly-approaching time when the graphics can be **organized and printed automatically.** While the benefit in time-saving and clarity of presentation will be appealing, it is even more important that the graphics encourage and stimulate revision so that the graphics can be kept up to date and reflect new knowledge that is gained.

(Extracted From An Unpublished Paper On Consensus Methodlogies By J. N. Warfield, 1982)